Mental Health Disorder Prevalence among Active Duty Service Members in the Military Health System, Fiscal Years 2005–2016

Prepared by the Deployment Health Clinical Center

Contents

I. Overview

Description

This section contains trends in period prevalence of each mental health disorder of interest among active duty service members (ADSMs) including active Guard and reserves within each fiscal year from 2005 to 2016. Prevalence of diagnosis for each disorder is aggregated and also stratified by military service, which includes Army, Air Force, Marine Corps, and Navy. A patient may be diagnosed with multiple mental health disorders in a given year; in this case, that patient is captured in the graph for each disorder.

Period prevalence was defined as the number of ADSMs diagnosed with the given mental health condition during the fiscal year of interest (numerator) over the total number of ADSMs at fiscal month six (March) of the fiscal year of interest (denominator). This measure does not determine the proportion of the active duty population ever diagnosed with a given mental health disorder. Instead, it determines the proportion of the active duty population that was diagnosed during the given fiscal year.

The mental health disorders assessed in this report include: adjustment disorders, alcohol-related disorders, alcohol abuse, alcohol dependence, anxiety disorders, bipolar disorders, depressive disorders, insomnia, personality disorders, psychoses, posttraumatic stress disorder (PTSD), schizophrenia, substance-related disorders, substance abuse, and substance dependence.

This report summarizes the prevalence of:

1. Any mental health disorder among ADSMs by military service
2. Specific mental health disorders among ADSMs by military service. There are three sub-sections for each specific mental health disorder:
   I. **Case Definition** (Armed Forces Health Surveillance Branch definition for the disorder of interest)
      a. http://www.health.mil/Military-Health-Topics/Health-Readiness/Armed-Forces-Health-Surveillance-Branch/Epidemiology-and-Analysis/Surveillance-Case-Definitions
   II. **The Numbers:** Graph of disorder prevalence by military service
   III. **Main Findings:** List of main takeaways for the graph

Methodology

We used the Military Health System Data Repository (MDR) to conduct these prevalence analyses. To be considered a patient with a given disorder, the patient had to be diagnosed with the condition of interest within that fiscal year. Specifically, the patient had to have the diagnoses of interest in the first or second diagnostic position in at least one of the following:

1. One inpatient stay
2. One outpatient visit

Date of data pull: April 2017

Definitions

Active Duty Service Member (ADSM)
ADSM was defined as any individual in the active component (including National Guard and reserves) of the Army, Navy, Air Force, and Marine Corps on the date of encounter in which they received the relevant mental health diagnosis.

Fiscal Year
Fiscal year of interest (e.g. fiscal year 2010 spans from Oct. 1, 2009, through Sep. 30, 2010).

ICD-10 Implementation

Starting fiscal year 2017 (Oct. 1, 2016), the Military Health System transitioned from using ICD-9 to ICD-10 diagnosis codes to record patient diagnoses. The case definitions utilized in this analysis were adjusted to reflect this change. Since ICD-10 codes are not a one-for-one match to ICD-9 codes, certain diagnoses may be artificially altered between fiscal year 2016 and fiscal year 2017. These alterations may not reflect true changes in mental health prevalence.

II. Prevalence of Any Mental Health Disorder by Military Service

Percentage of Active Duty Service Member (ADSM) Population Diagnosed With **Any Mental Health Disorder** by Military Branch, Fiscal Years 2005-2016
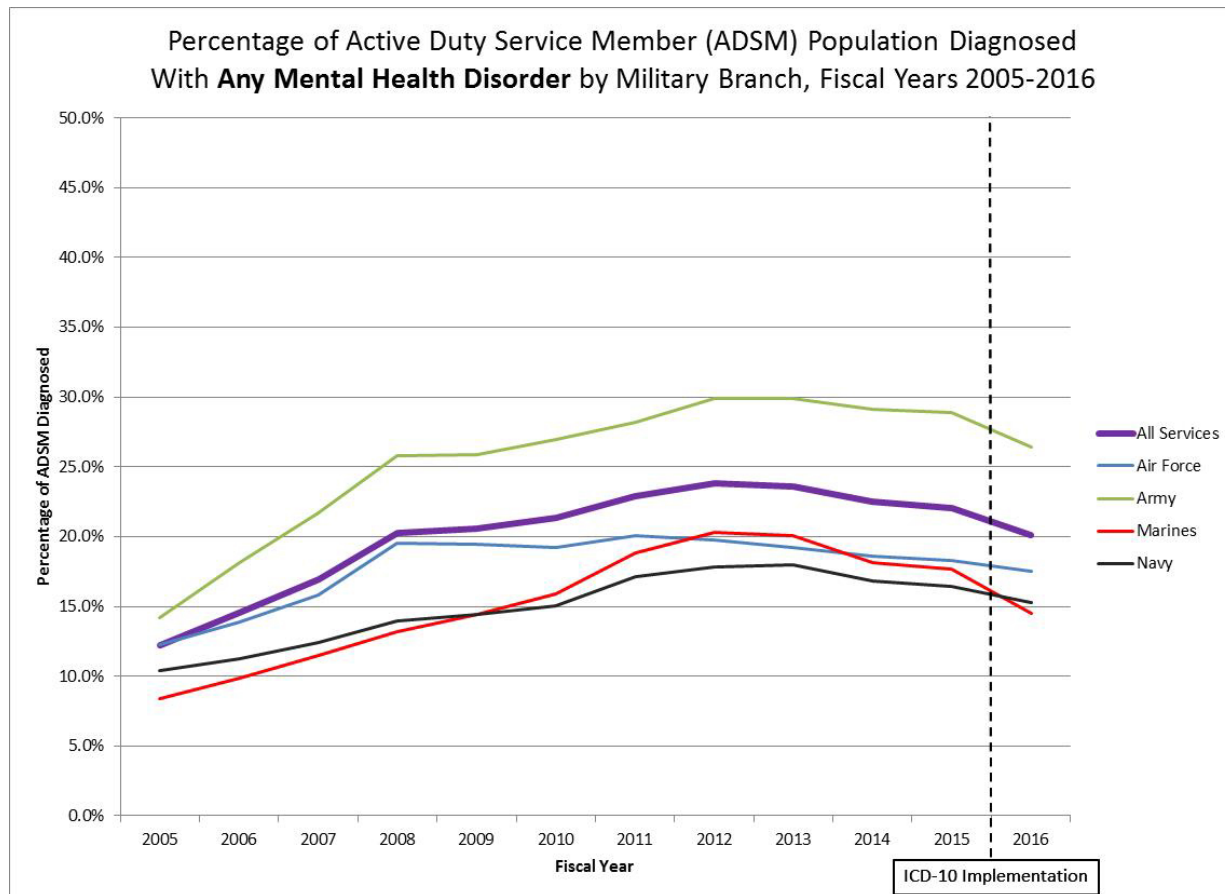
Military Service	Prevalence	2005[2]	2006[2]	2007[2]	2008[2]	2009[2]	2010[2]	2011[2]	2012[2]	2013[2]	2014[2]	2015[2]	2016[2]
All Listed Services	Mental Health Cases	209,982	236,842	275,214	333,172	347,273	365,011	383,812	389,507	375,655	349,328	328,000	297,473
	ADSM Population[1]	1,719,753	1,632,373	1,623,462	1,646,548	1,686,521	1,708,575	1,678,478	1,636,693	1,591,669	1,552,476	1,486,438	1,477,761
	Percent Diagnosed[4]	12.2%	14.5%	17.0%	20.2%	20.6%	21.4%	22.9%	23.8%	23.6%	22.5%	22.1%	20.1%
Army	Mental Health Cases	101,857	119,767	145,848	183,751	192,041	203,957	207,467	211,746	201,946	186,858	173,798	155,155
	ADSM Population[1]	715,833	659,116	673,253	711,960	741,327	755,924	735,698	708,356	674,998	640,996	601,939	587,527
	Percent Diagnosed[4]	14.2%	18.2%	21.7%	25.8%	25.9%	27.0%	28.2%	29.9%	29.9%	29.2%	28.9%	26.4%
Air Force	Mental Health Cases	50,323	54,725	60,827	72,189	72,519	73,015	75,875	74,172	71,923	68,311	63,742	61,558
	ADSM Population[1]	409,765	394,563	384,338	369,867	372,252	380,260	377,459	375,841	374,405	367,602	349,144	351,635
	Percent Diagnosed[4]	12.3%	13.9%	15.8%	19.5%	19.5%	19.2%	20.1%	19.7%	19.2%	18.6%	18.3%	17.5%
Marine Corps	Mental Health Cases	16,876	19,279	22,473	27,117	31,177	34,697	40,236	42,627	40,912	36,248	33,920	27,710
	ADSM Population[1]	201,331	195,961	195,385	205,135	215,552	218,169	213,638	209,961	204,099	200,217	191,613	191,264
	Percent Diagnosed[4]	8.4%	9.8%	11.5%	13.2%	14.5%	15.9%	18.8%	20.3%	20.0%	18.1%	17.7%	14.5%
Navy	Mental Health Cases	40,926	43,071	46,066	50,115	51,536	53,342	60,234	60,962	60,874	57,911	56,540	53,050
	ADSM Population[1]	392,824	382,733	370,486	359,586	357,390	354,222	351,683	342,535	338,167	343,661	343,742	347,335
	Percent Diagnosed[4]	10.4%	11.3%	12.4%	13.9%	14.4%	15.1%	17.1%	17.8%	18.0%	16.9%	16.4%	15.3%

Main Findings

- Among all service members, mental health disorder prevalence rose roughly 12 percent in 2005 to more than 23 percent in 2013 and then declined to approximately 20 percent in 2016. This increase occurred concurrently with a 14.1 percent decline in the total ADSM population between 2005 and 2016.
- The Army had the greatest percentage of ADSMs diagnosed in each year of the measurement period, rising to approximately 30 percent by fiscal year 2013.
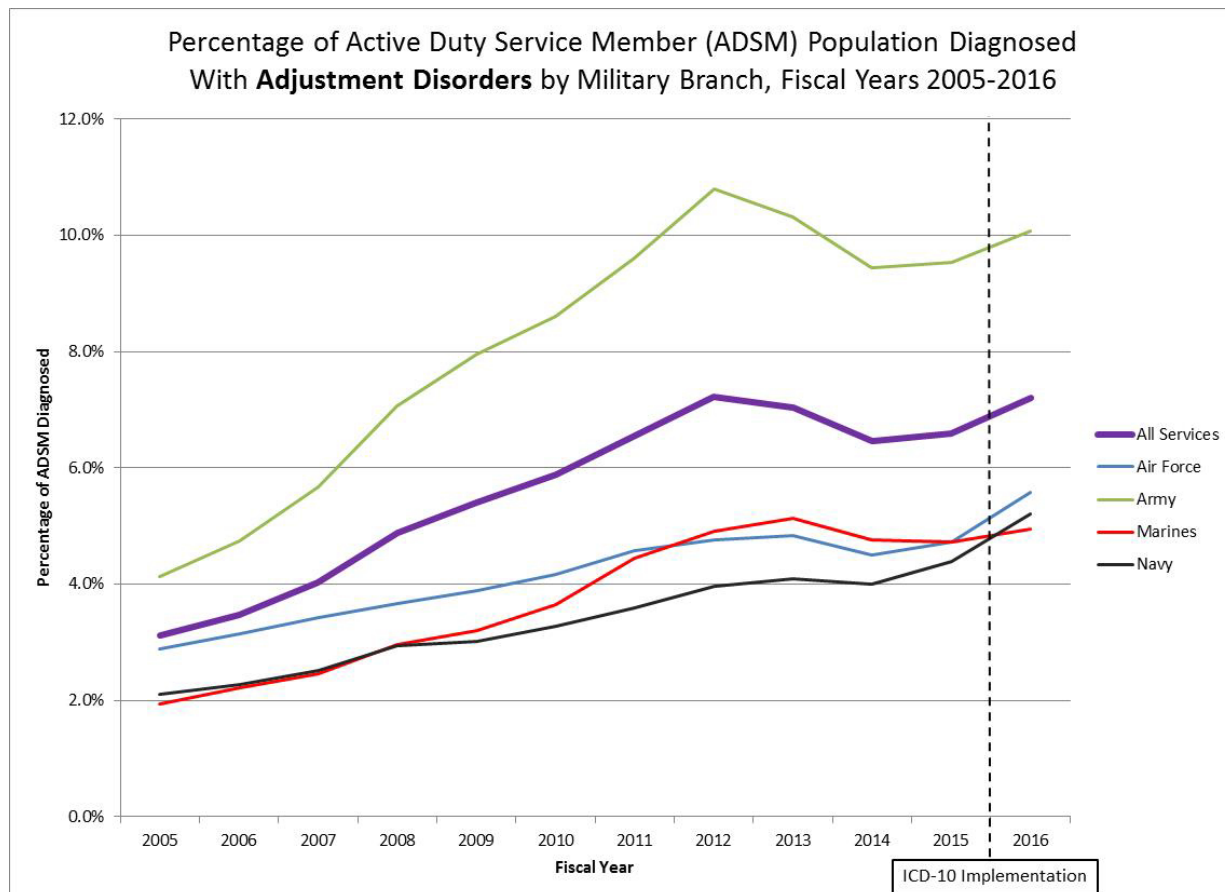
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III. Prevalence of Specific Mental Health Disorders by Military Service

Adjustment Disorders

Definition

An adjustment disorder is a psychological response to an identifiable stressor or group of stressors that cause(s) significant emotional or behavioral symptoms that do not meet criteria for another specific Axis I disorder. Symptoms cause marked distress that is in excess of what would be expected from exposure to the stressor and may cause significant impairment in social or occupational functioning. Symptoms do not represent bereavement, must occur within three months of the event(s) or stressor(s), and must persist for no longer than six months after the stressor, or its consequences, have been removed.[2] This does not include acute stress disorders or posttraumatic stress disorder (PTSD).

The Numbers

Percentage of Active Duty Service Member (ADSM) Population Diagnosed With **Adjustment Disorders** by Military Branch, Fiscal Years 2005-2016
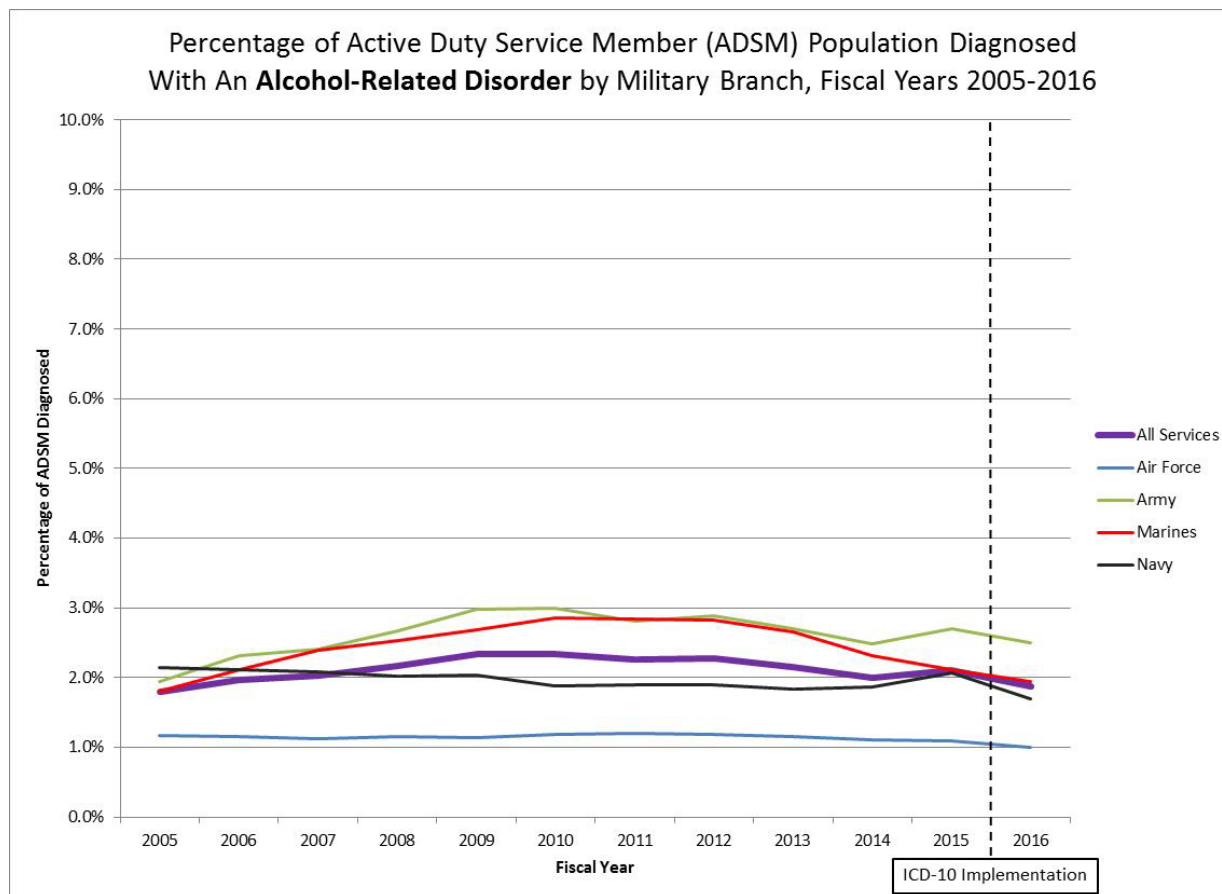

Main Findings

- The percentage of ADSMs diagnosed with an adjustment disorder increased from 3 percent to nearly 7 percent during the reporting period.
- The Army diagnosed nearly 11 percent of its service members with an adjustment disorder in 2012, leveling off near 10 percent in 2016.

Alcohol-related Disorders

Definition

Alcohol-related disorders encompass both alcohol abuse and alcohol dependence, both of which will be defined in the following two sections. This does not include alcohol use disorders.

The Numbers

Percentage of Active Duty Service Member (ADSM) Population Diagnosed With An **Alcohol-Related Disorder** by Military Branch, Fiscal Years 2005-2016
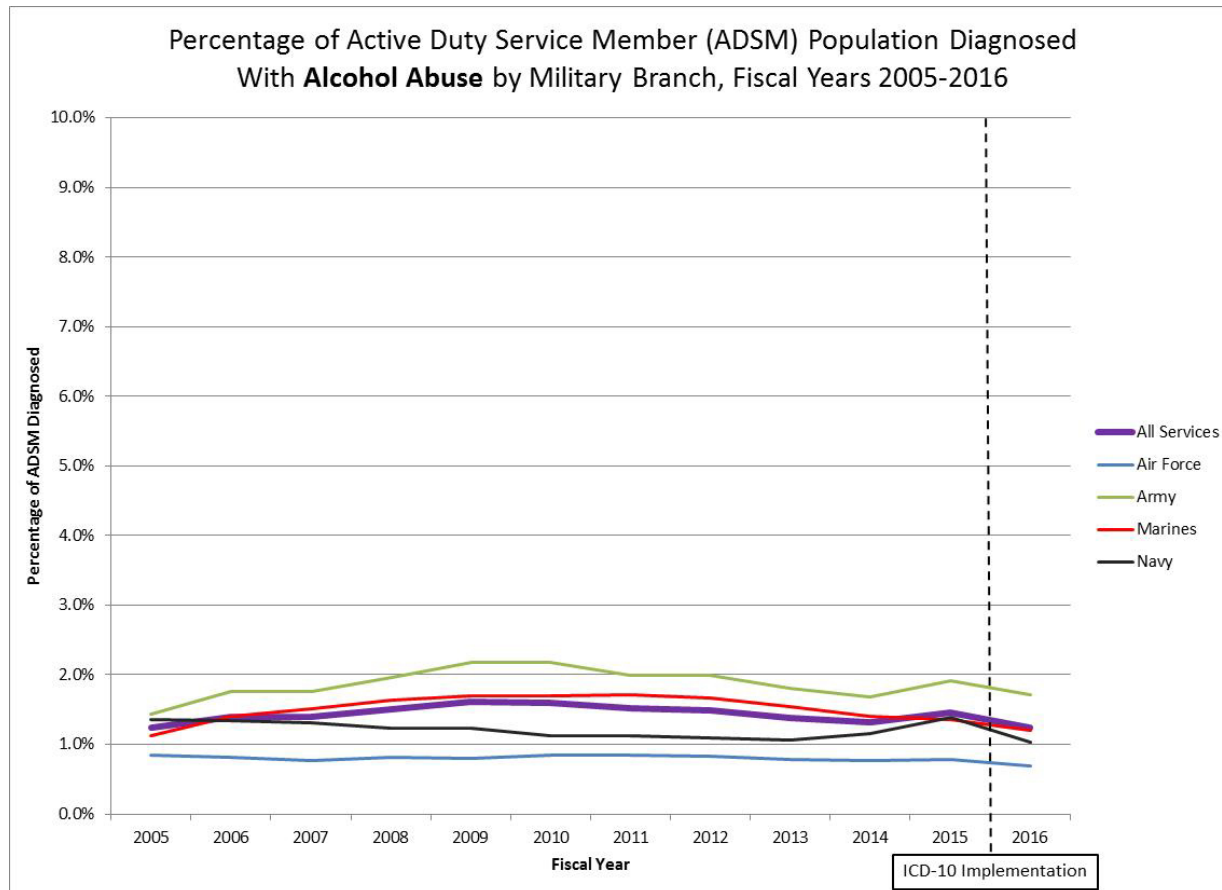

Main Findings

- The Army and Marine Corps have, until 2016, consistently had the highest percentage of ADSMs diagnosed with an alcohol-related disorder.
- The Air Force maintained a lower proportion of diagnosed service members at just above 1 percent for the duration of the 11-year reporting period.

Alcohol Abuse

Definition

Alcohol *abuse* is a maladaptive pattern of alcohol use leading to clinically significant impairment or distress. Occurring within a 12-month period, alcohol abuse is usually manifested by recurrent alcohol use resulting in a failure to fulfill major role obligations, use in situations that are physically hazardous, alcohol-related legal problems, and continued alcohol use despite social and interpersonal problems caused by, or exacerbated by, the effects of alcohol.[1,2]

The Numbers

Percentage of Active Duty Service Member (ADSM) Population Diagnosed With **Alcohol Abuse** by Military Branch, Fiscal Years 2005-2016
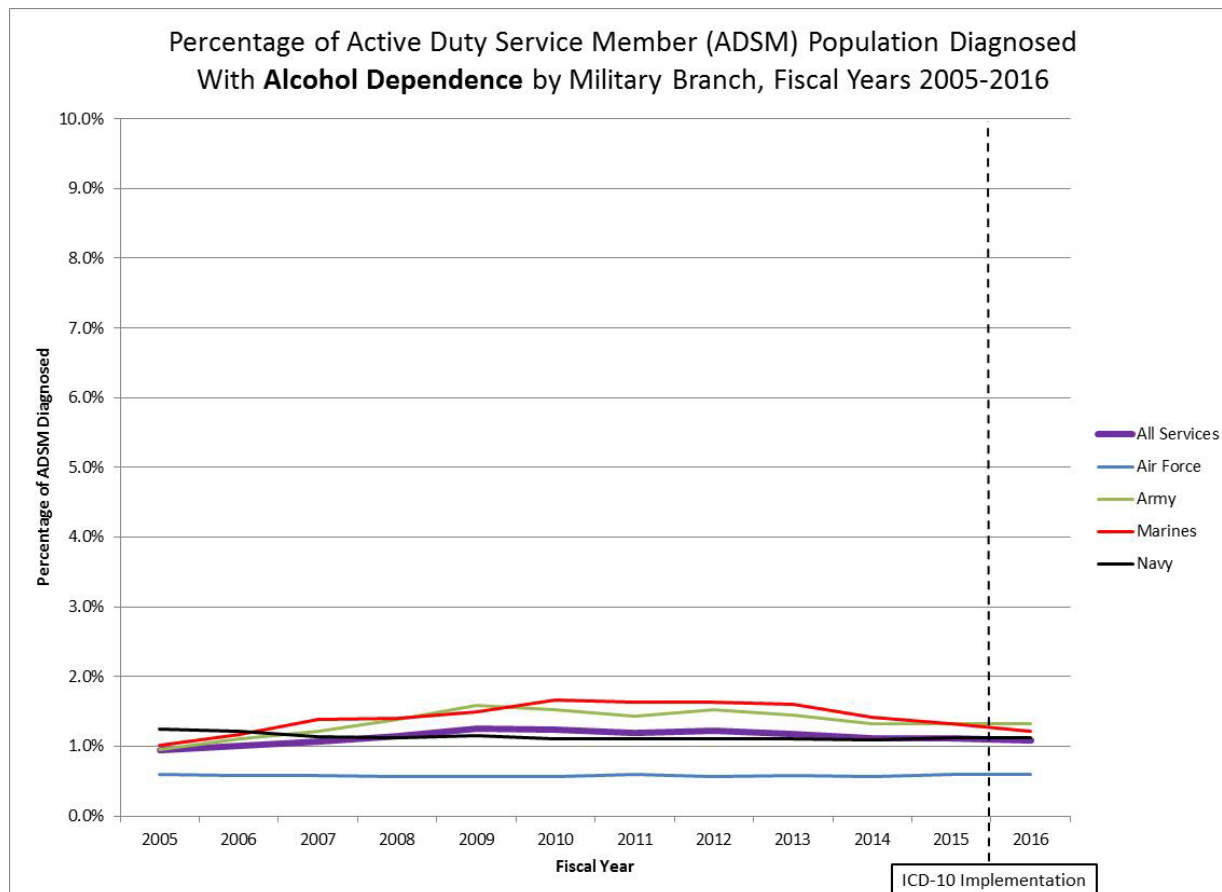
Main Findings

- The percentage of service members diagnosed with alcohol abuse hovered around 1.5 percent over the reporting period.
- The Army consistently diagnosed the highest percentage, while the Air Force diagnosed the lowest percentage.

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Alcohol Dependence

Definition

Alcohol *dependence* is a maladaptive pattern of alcohol abuse leading to clinically significant impairment, distress, and hardship. There is a pattern of repeated alcohol use that often results in tolerance, withdrawal, and compulsive drinking behavior. Often, a great deal of time is spent in activities necessary to obtain the substance, use the substance, or recover from its effects. There are persistent desires to drink and unsuccessful efforts to cut down or control use. Denial of an alcohol abuse-related problem is an inherent component of dependence.[1,2]

The Numbers

Percentage of Active Duty Service Member (ADSM) Population Diagnosed With **Alcohol Dependence** by Military Branch, Fiscal Years 2005-2016
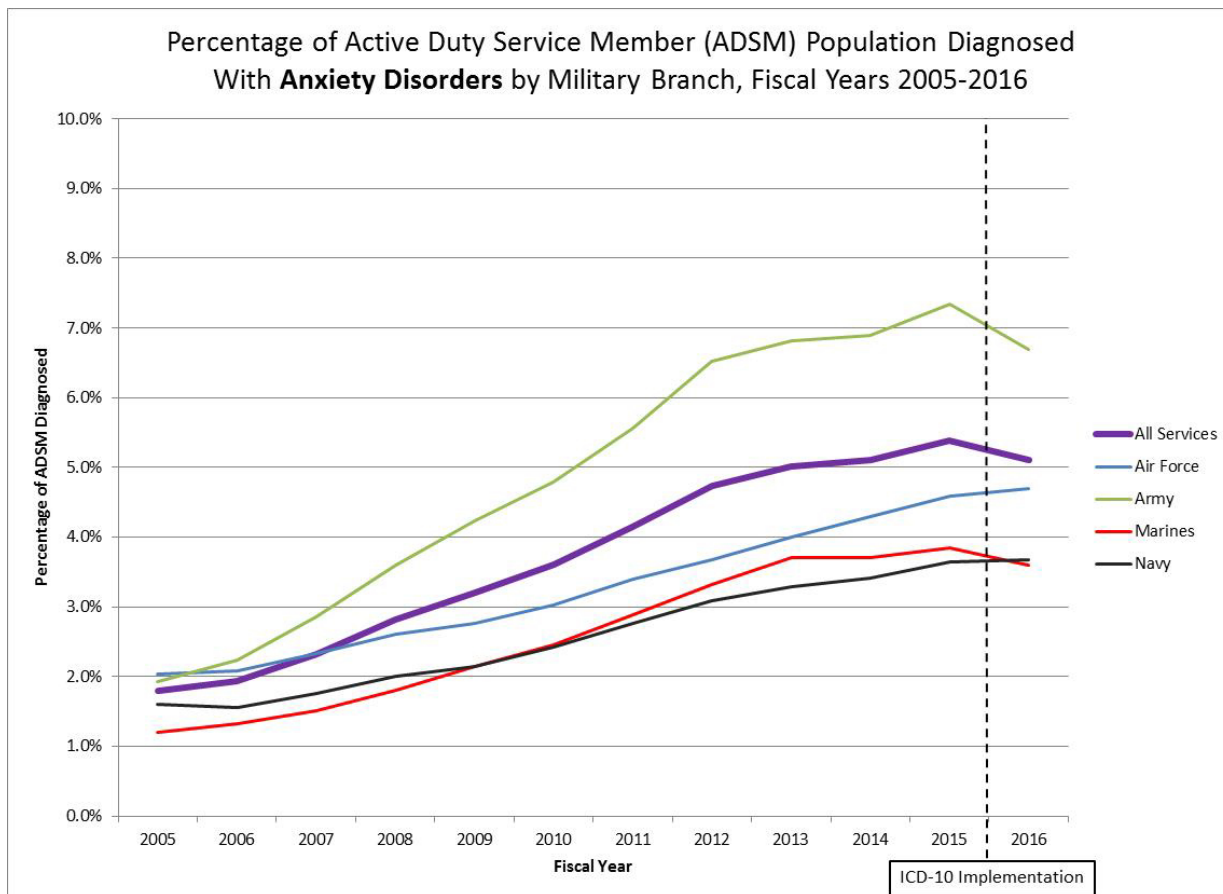
Main Findings

- The Marine Corps diagnosed a slightly higher percentage of ADSMs with alcohol dependence over the majority of the reporting period than the other services, followed closely by the Army.

- Similar to alcohol abuse, the Air Force diagnosed a lower percentage of ADSMs than the other three services.

Anxiety Disorders

Definition

Anxiety disorders encompass a broad range of mental illnesses. Generalized anxiety disorders are characterized by chronic and excessive worry about minor day-to-day problems. The worrying is usually severe and impedes an individual's social and occupational functioning. Individuals with phobias have a persistent fear that is excessive or unreasonable, cued by the presence or anticipation of a specific object or situation. Exposure to the phobic stimulus results in an immediate anxiety reaction or panic attack. Panic disorders are characterized by unexpected and repeated episodes of intense fear of disaster or of losing control even when there is no real danger. Attacks are often accompanied by physical symptoms of stress. Individuals with obsessive compulsive disorder experience obsessions (recurrent, persistent thoughts, impulses or images in excess of worries about real-life problems) and compulsions (repetitive behaviors such as hand washing, ordering, checking or mental acts such as praying, counting, repeating words silently) and are driven to perform these activities in response to an obsession.[1,2]

The Numbers

Percentage of Active Duty Service Member (ADSM) Population Diagnosed With **Anxiety Disorders** by Military Branch, Fiscal Years 2005-2016
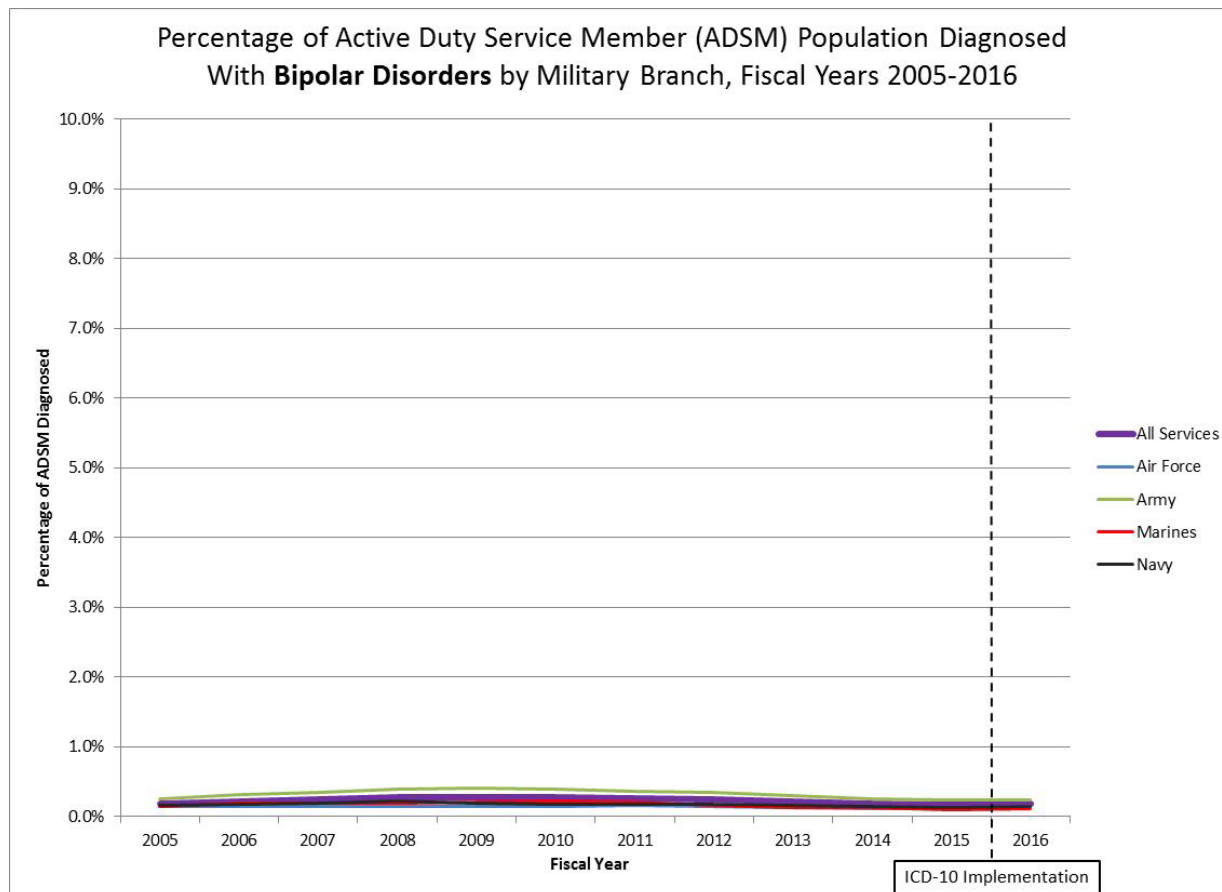
Main Findings

- The percentage of anxiety disorder diagnoses among all ADSMs rose drastically from under 2 percent in 2005 to more than 5 percent in 2016.
- The Army had a higher burden of anxiety disorders than the other services during the reporting period, diagnosing more than 7 percent of its ADSMs in 2015.

Bipolar Disorders

Definition

Bipolar disorders is a category of mood disorders defined by the occurrence of one or more episodes of abnormally elevated mood, clinically referred to as mania or, if mood elevations are milder, hypomania. Individuals who experience manic episodes also commonly experience depressive episodes or symptoms, or mixed episodes in which features of both mania and depression are present at the same time. The disorders are subdivided into bipolar I, bipolar II, and other types, based on the nature and severity of mood episodes experienced.[1,2]

The Numbers

Percentage of Active Duty Service Member (ADSM) Population Diagnosed With **Bipolar Disorders** by Military Branch, Fiscal Years 2005-2016
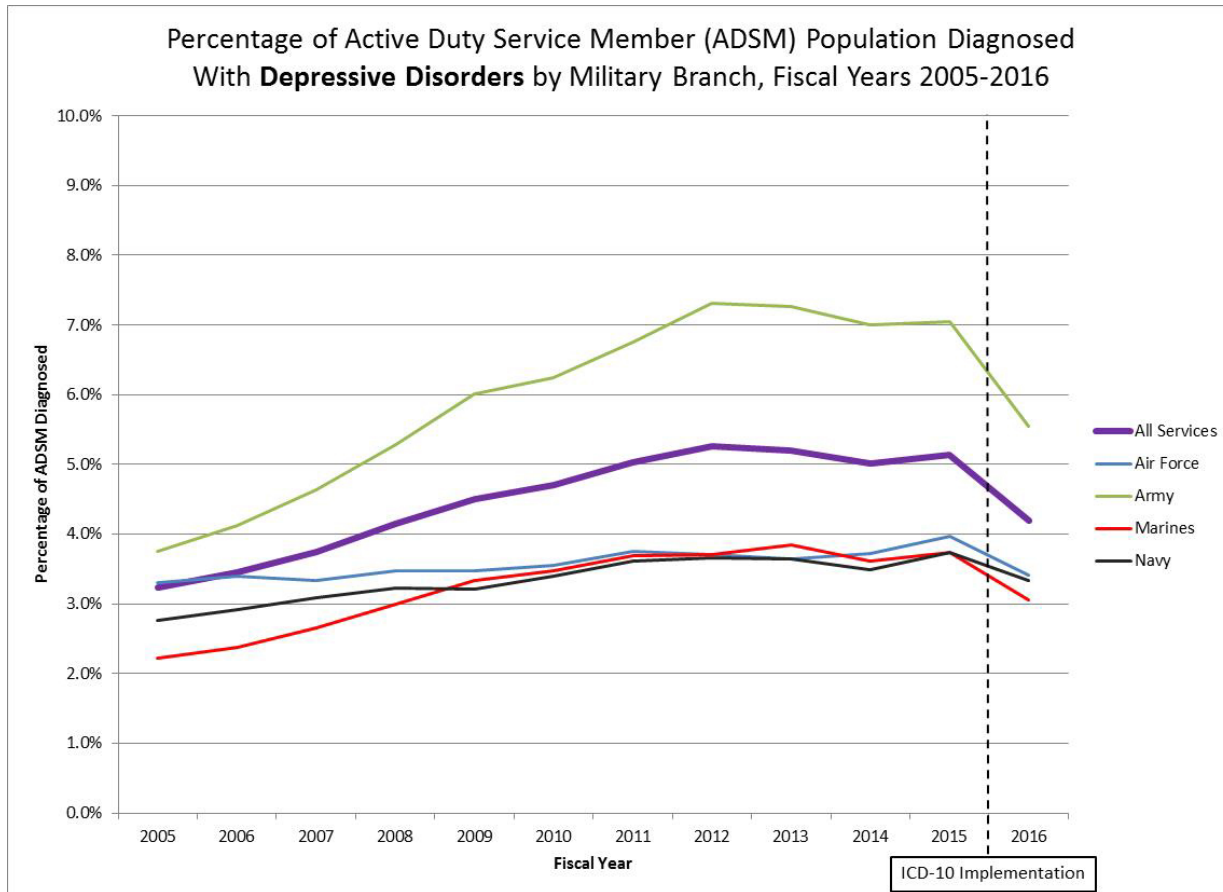
Main Findings

- The percentage of bipolar disorder diagnoses remained well under 0.5 percent during the reporting period among ADSMs.

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Depressive Disorders

Definition

Depressive disorders are mental illnesses characterized by a persistent, all-encompassing, low mood often accompanied by one or more of the following symptoms: weight loss or gain, insomnia or hypersomnia, psychomotor agitation or retardation, fatigue, loss of interest or pleasure in normally enjoyable activities, diminished ability to think or concentrate, feelings of worthlessness or excessive guilt, and recurrent thoughts of death or suicide. Major depressive disorder manifests as a moderate to severe episode of depression lasting two or more weeks, while dysthymic disorder is characterized by ongoing, chronic depression often lasting for two or more years.[1,2]

The Numbers

Percentage of Active Duty Service Member (ADSM) Population Diagnosed With **Depressive Disorders** by Military Branch, Fiscal Years 2005-2016
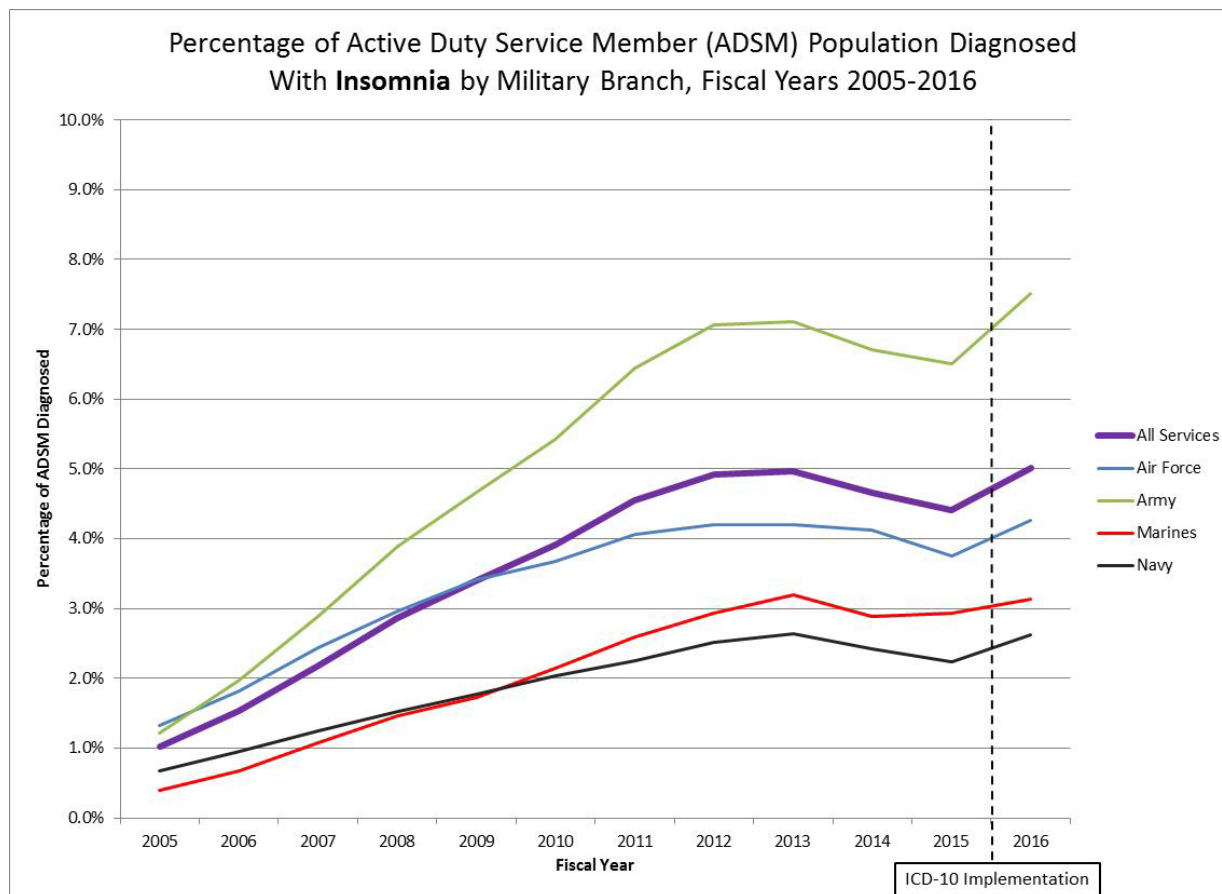
Main Findings

- The percentage of ADSMs diagnosed with a depressive disorder rose steadily during the reporting period, from 3 percent in 2005 to more than 5 percent in 2015.
- The Army diagnosed a disproportionate amount of ADSMs with depressive disorders compared to the other three services, with more than 7 percent of its active duty population diagnosed in 2015.

Insomnia

Definition

Insomnia is the inability to obtain an adequate amount or quality of sleep and the condition is the most common sleep disorder in adults in the United States. Symptoms include difficulty initiating sleep, early awakening, and non-restorative or poor quality sleep. Insomnia can occur as a "primary" condition or as a "secondary" condition meaning the cause is attributable to, or may coexist with, a specific medical, psychiatric or environmental condition. The diagnosis is more common in women and older adults and is often associated with occupational and environmental risk factors (e.g., military personnel on rotating shifts, night shift work, stress, and frequent moves, including deployment).[1,3,4]

The Numbers

Percentage of Active Duty Service Member (ADSM) Population Diagnosed With **Insomnia** by Military Branch, Fiscal Years 2005-2016
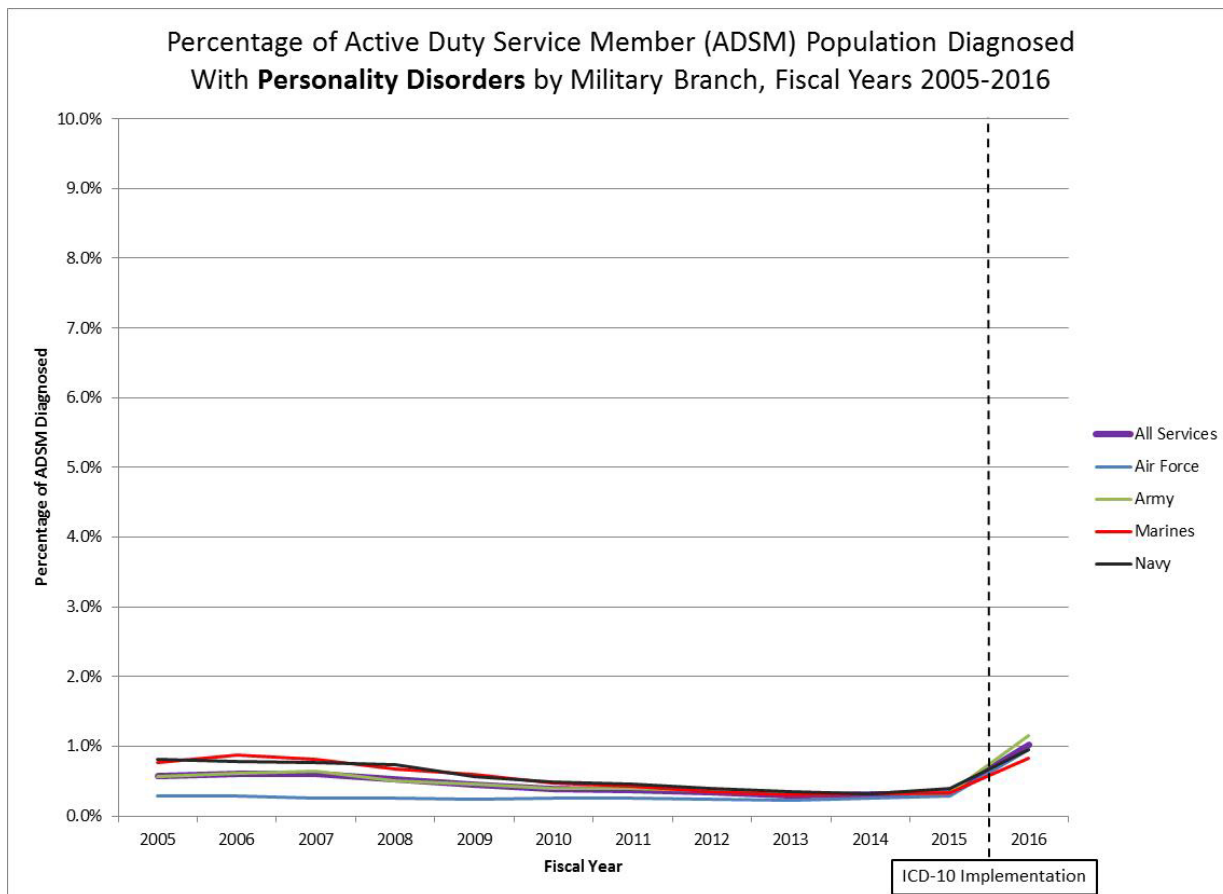
Main Findings

- The percentage of ADSMs diagnosed with insomnia rose from 1 percent in 2005 to 5 percent in 2016.
- The Army diagnosed a higher percentage of ADSMs with insomnia during much of the reporting period, with nearly 7 percent of its active duty population diagnosed in 2015.

Personality Disorders

Definition

Personality disorders are a group of personality types that manifest as enduring patterns of psychological experience and behavior that markedly affect an individual's ability to function individually and interpersonally with others in social and occupational settings. In general, the behavior patterns are inflexible and pervasive across a wide range of situations and have often been present in the individual since adolescence or early adulthood. Currently the Diagnostic and Statistical Manual of Mental Disorders lists 10 personality disorders, grouped in three clusters: 1) odd or eccentric disorders which includes paranoid, schizoid, and schizotypal personality disorder; 2) dramatic, emotional or erratic disorders which include antisocial, borderline, histrionic, and narcissistic personality disorder; and 3) anxious or fearful disorders which include avoidant, dependent, and obsessive-compulsive personality disorder.[1,2]

The Numbers

Percentage of Active Duty Service Member (ADSM) Population Diagnosed With **Personality Disorders** by Military Branch, Fiscal Years 2005-2016
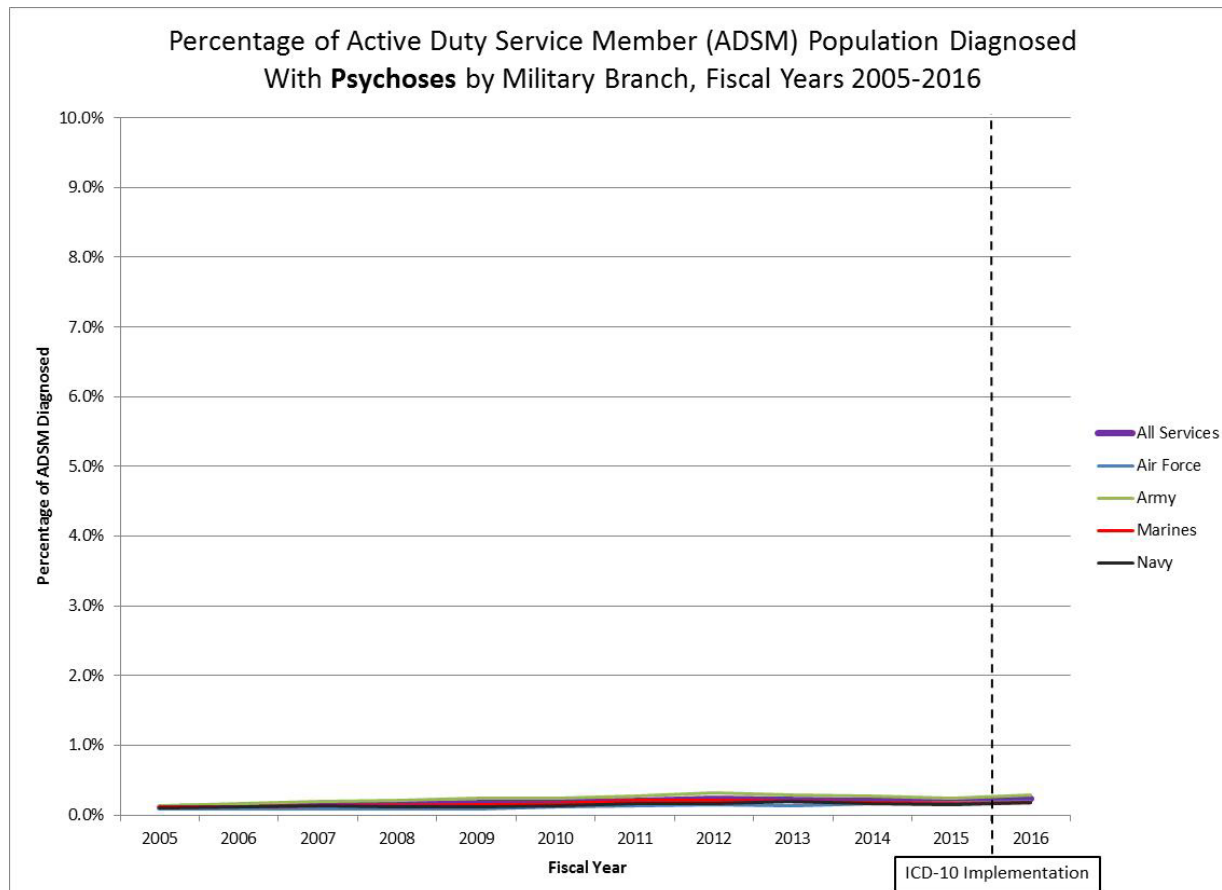
Main Findings

- The percentage of ADSMs diagnosed with a personality disorder has declined in the Army, Marine Corps, and Navy over the last decade, to less than 0.5 percent each by 2015.
- The percentage of ADSMs diagnosed with a personality disorder increased across all services in 2016. This increase was likely due to the MHS implementation of ICD-10 on Oct. 1, 2017.

Psychoses

Definition

Psychoses are a component of certain serious mental disorders and are usually marked by an individual having false beliefs about what is taking place in reality. Psychotic symptoms often include delusions (believing something is true despite strong evidence to the contrary), hallucinations (seeing and hearing things that are not actually present), disorganized thoughts and speech, and disordered thinking.[1,2]

The Numbers

Percentage of Active Duty Service Member (ADSM) Population Diagnosed With **Psychoses** by Military Branch, Fiscal Years 2005-2016
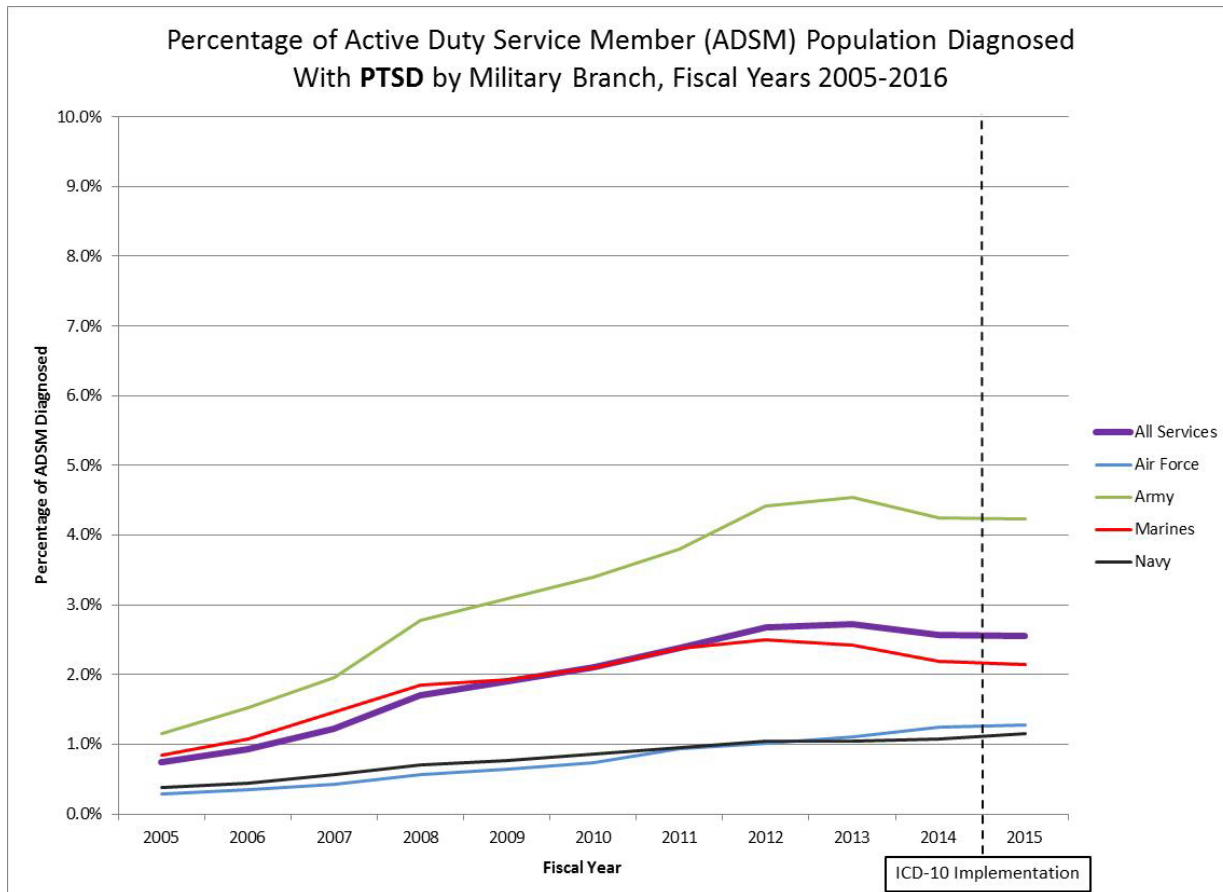
Main Findings

- The percentage of active duty personnel diagnosed with psychoses has increased slightly since 2005, but was still less than 0.25 percent in 2015.
- The Army has a slightly higher percentage of diagnosed psychoses among ADSMs.

Posttraumatic Stress Disorder (PTSD)

Definition

Posttraumatic stress disorder, commonly referred to by its acronym, PTSD, is a severe anxiety disorder that can develop after exposure to any event that causes psychological trauma. The event may involve the threat of death to oneself or to someone else, or a threat to one's own or someone else's physical, sexual, or psychological integrity, overwhelming the individual's psychological defenses. Symptoms include re-experiencing the original trauma(s) through flashbacks or nightmares, avoidance of stimuli associated with the trauma, and increased arousal manifest as difficulty falling asleep or staying asleep, anger, or hypervigilance. Formal diagnostic criteria are dependent upon the duration of symptoms, and the associated impairment in social, occupational, or other important areas of functioning, (e.g., problems with work and relationships).[1,2]

The Numbers

Percentage of Active Duty Service Member (ADSM) Population Diagnosed With **PTSD** by Military Branch, Fiscal Years 2005-2016
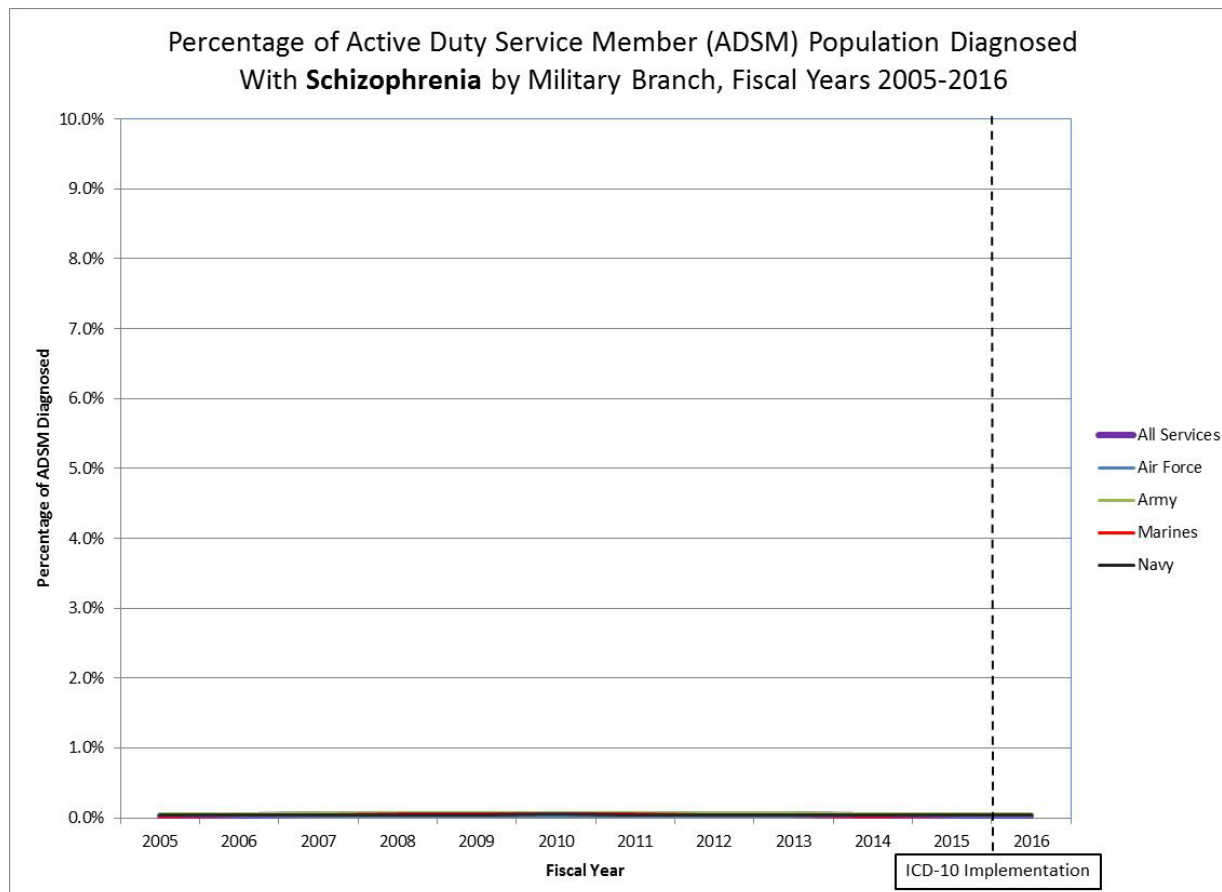
Main Findings

- The percentage of PTSD diagnoses among ADSMs steadily rose over the last decade from less than 1 percent in 2005 to 2.5 percent in 2016.
- The Army disproportionately diagnosed a higher percentage of its service members with PTSD, with over 4 percent diagnosed each year from 2012 to 2016.
- Despite steadily rising trends, the Air Force and the Navy diagnosed a lower percentage of service members with PTSD than the Marine Corps and Army at just over 1 percent in 2015.

Schizophrenia

Definition

Schizophrenia is a severe, frequently unremitting mental illness that involves symptoms of hallucinations, delusions, paranoia, disorganized speech, and other disorganized behavior. The etiology is unknown although genetic and environmental risk factors have been identified. Symptom onset is insidious, often beginning in adolescence and progressing until symptoms become severe enough to require medical attention. The syndrome usually significantly affects occupational and social interactions, and earlier age at onset is associated with greater morbidity.[1,2] Complete remission of the disorder is rare.

The Numbers

Percentage of Active Duty Service Member (ADSM) Population Diagnosed With Schizophrenia by Military Branch, Fiscal Years 2005-2016

Y-axis: Percentage of ADSM Diagnosed (0.0% to 10.0%)
X-axis: Fiscal Year (2005 to 2016)

Legend:
- All Services
- Air Force
- Army
- Marines
- Navy

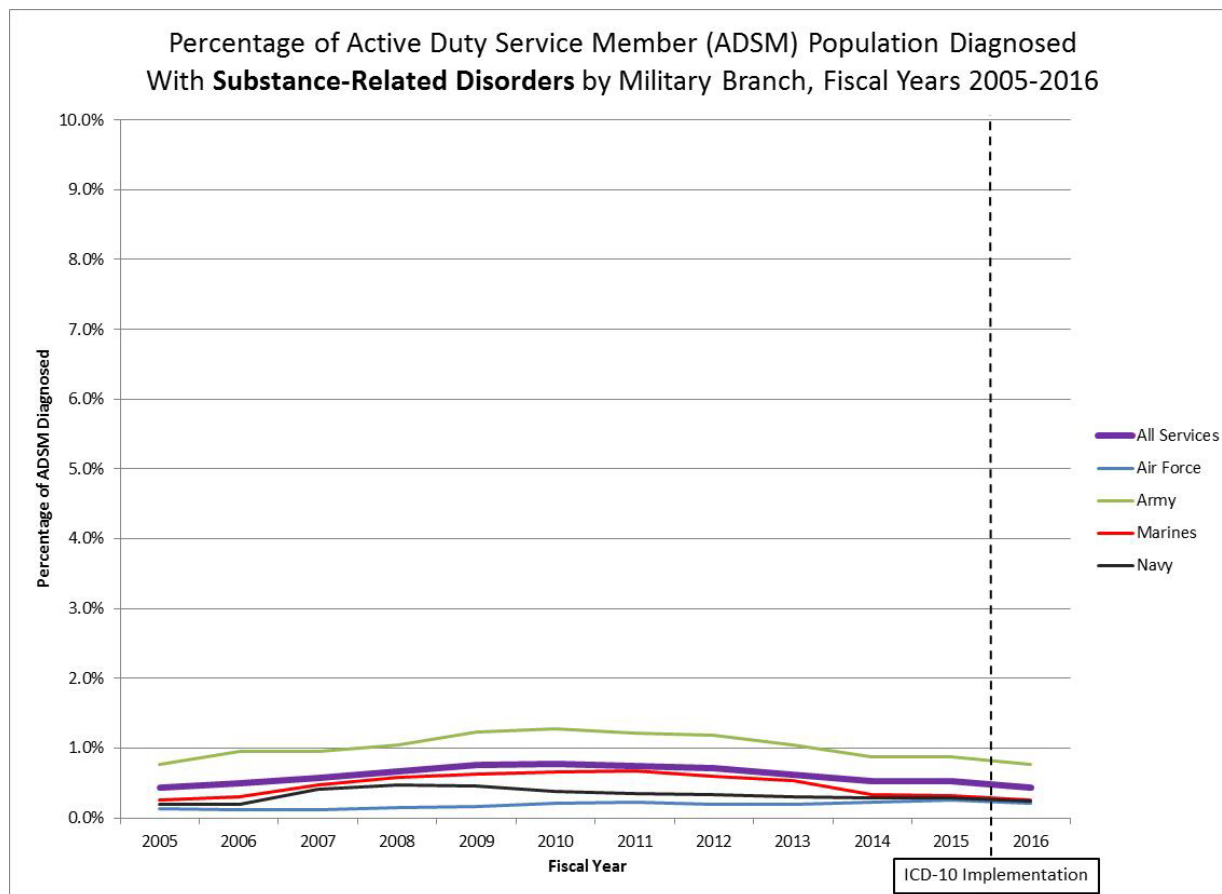ICD-10 Implementation

Main Findings

- The percentage of ADSM diagnosed with schizophrenia remained steady at less than 0.1 percent over the duration of the reporting period.

Substance-related Disorders

Definition

Substance-related disorders include both substance abuse and substance dependence, which will be defined in the following two sections. This does not include tobacco use disorders or alcohol-related disorders.

The Numbers

Percentage of Active Duty Service Member (ADSM) Population Diagnosed
With **Substance-Related Disorders** by Military Branch, Fiscal Years 2005-2016
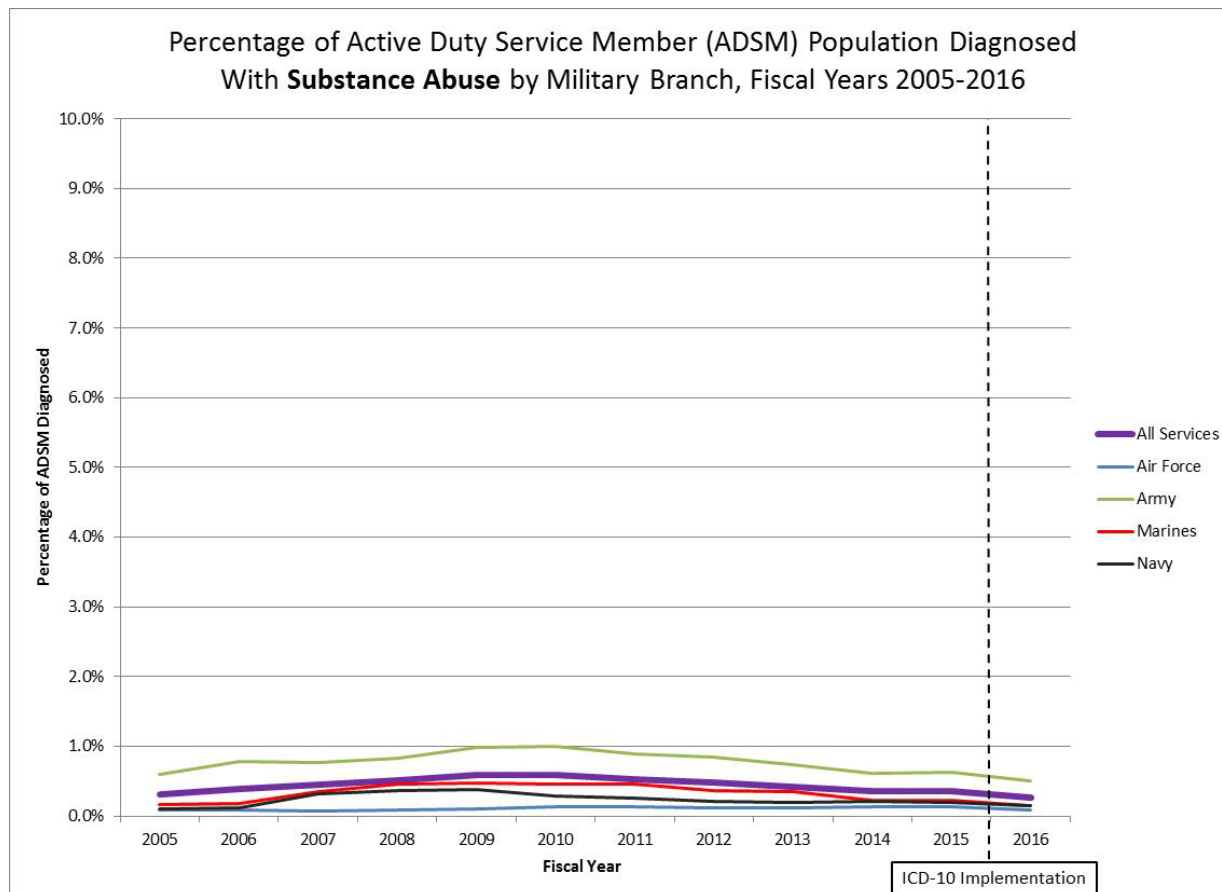

Main Findings

- The percentage of ADSMs diagnosed with a substance-related disorder rose slowly but steadily from 2005 to 2010, and declined in subsequent years to 0.4 percent in 2016.
- The Army diagnosed a higher percentage of service members with a substance-related disorder over the reporting period, with 1.3 percent diagnosed in 2010, declining to 0.8 percent in 2016.
- The Air Force diagnosed the lowest proportion of ADSMs, hovering at 0.3 percent or less from 2005–2016.

Substance Abuse

Definition

Substance *abuse* is a maladaptive pattern of substance use leading to clinically significant impairment or distress. The abuse is usually manifested by one or more of the following, occurring within a 12-month period: recurrent substance use resulting in a failure to fulfill major role obligations, use in situations that are physically hazardous, substance-related legal problems, and continued substance use despite persistent or recurrent social and interpersonal problems caused or exacerbated by the effects of the substance.[1,2]

The Numbers

Percentage of Active Duty Service Member (ADSM) Population Diagnosed With **Substance Abuse** by Military Branch, Fiscal Years 2005-2016
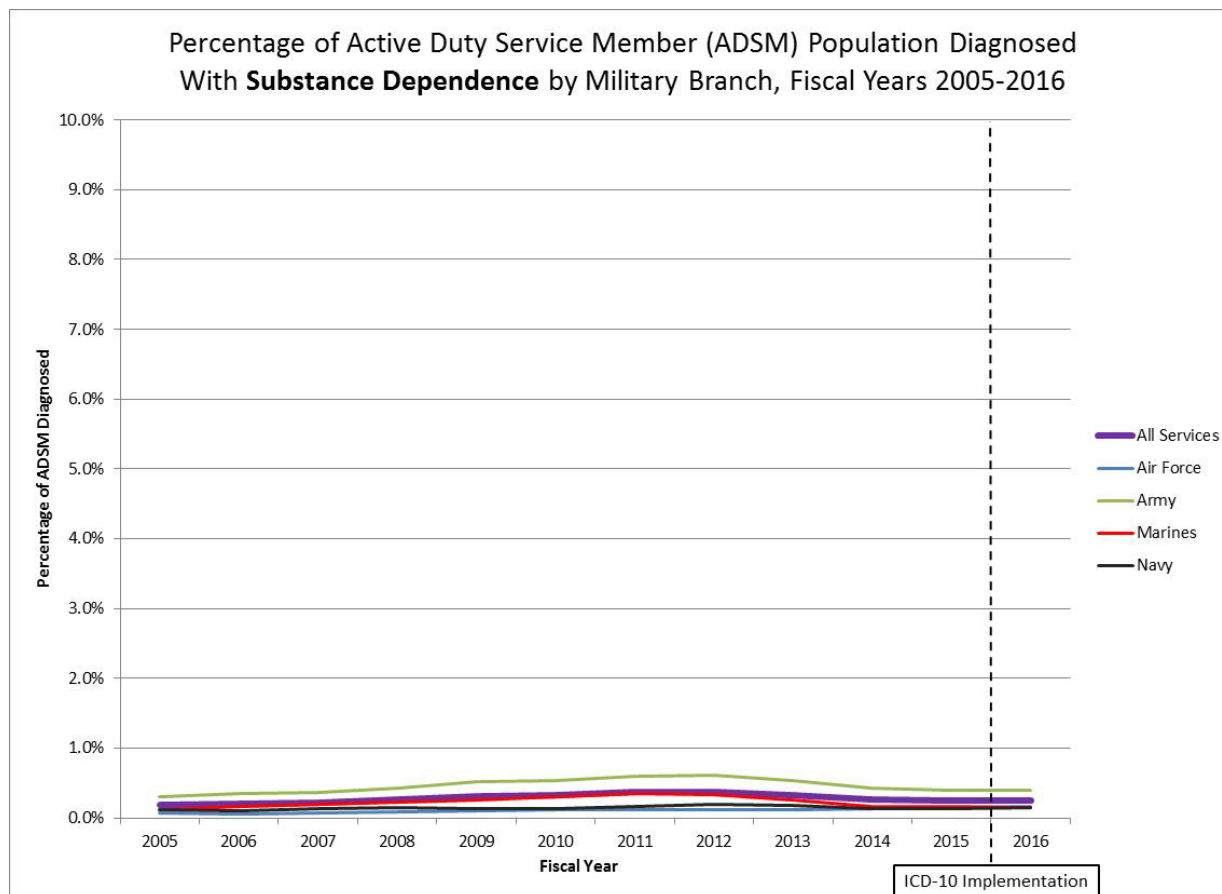
Main Findings

- Substance abuse disorders among ADSMs rose from 0.3 percent in 2005 to 0.6 percent in 2010, but declined steadily to 0.3 percent by 2016.
- The Army diagnosed a higher percentage of ADSMs with a substance abuse disorder across 2005–2016 compared to the other services.

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Substance Dependence

Definition

Substance *dependence* is a maladaptive pattern of substance abuse leading to clinically significant impairment, distress, and hardship. There is a pattern of repeated substance use that often results in tolerance, withdrawal, and compulsive substance use behavior. There are persistent desires and unsuccessful efforts to cut down or control use, and a great deal of time is spent in activities necessary to obtain the substance, use the substance, or recover from its effects. Denial of a substance abuse-related problem is an inherent component of dependence.[1,2]

The Numbers

Main Findings

- The percentage of ADSMs diagnosed with substance dependence hovered at less than 0.5 percent over the reporting period, with 0.3 percent diagnosed in 2016.

- Similar to substance abuse, the Army consistently diagnosed a higher percentage than the other three services over the reporting period.

IV. Suggested Future Directions

1. Conduct a sensitivity analysis that compares period prevalence (i.e. the current report) to lifetime prevalence and incidence rates of mental health diagnoses in the Military Health System.

2. Delineate trends in mental health disorder diagnoses by mental health disorder (e.g. depressive disorders, PTSD, and anxiety disorders).

3. Seek to identify individual-, treatment-, facility-, and environmental-level factors correlated with changes in prevalence of mental health disorders in the ADSM population between fiscal years 2005 and 2016. Assess the prevalence of each mental health disorder during this period.

4. Investigate factors associated with the increased period prevalence of mental health disorders among Army personnel compared to other listed services. Analyses could identify risk factors associated with the onset of mental health disorders (e.g. race, rank, gender) that increase the likelihood of diagnosis.

5. Determine demographic (e.g. race, gender, age, education) and geographic (e.g. state, region) distributions of mental health diagnoses among ADSMs, and use these variables to help predict future trends in mental health diagnoses.

6. Assess whether clinic-level metrics, such as staffing levels and appointment availability correlate with trends in prevalence of mental health diagnoses among diagnosed ADSMs.

7. Investigate the prevalence of comorbidities (i.e. multiple mental health diagnoses per ADSM) in the ADSM population.

8. Assess the impact of combat-related exposures among ADSMs (e.g. days deployed, region of deployment, number of deployments) on the prevalence of mental health diagnoses.

V. References

1. Armed Forces Health Surveillance Branch. Epidemiology and Analyses: Surveillance Case Definitions. Accessed 08/22/16. Found at: http://www.health.mil/Military-Health-Topics/Health-Readiness/Armed-Forces-Health-Surveillance-Branch/Epidemiology-and-Analysis/Surveillance-Case-Definitions

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4. Armed Forces Health Surveillance Center. Insomnia, Active Component, U.S. Armed Forces, January 2000–December 2009. *Medical Surveillance Monthly Report (MSMR)*; 2010 May; Vol 17(5): 8–11.